

Amendments To The Claims

The listing of claims presented below will replace all prior versions, and listings, of claims in the application.

Listing of claims:

1. (currently amended) A garbage data collection method comprising:
making a first list of objects ~~that must to~~ be deleted from a memory;
calculating a residual time up to a predetermined time limit after processing an external command;

after calculating the residual time, deleting the listed objects of the first list from the memory during within the calculated residual time; and

storing a updating the first list of remaining objects to list those undeleted objects of the first list which remain after the lapse of that have not been deleted from the memory during the calculated residual time, and storing the updated first list such that the objects in the updated first list are available for deletion in another communication cycle.
2. (currently amended) The method of claim 1, wherein the ~~calculating the residual time comprises: calculating a residual time remaining up to a timeout~~ time limit --is-- determined by a host that transmits the external command or the time limit is determined to be a period of time up to a time guaranteeing QoS that a user does not feel a response delay to the external command.
3. (currently amended) The method of claim 1, wherein the act of making the first

list ~~of objects comprises: making the list~~ is performed when --a-- garbage collection is requested or when a communication session for receiving the external command is initialized.

4. (currently amended) The method of claim 1, wherein the act of making the list of objects comprises:

~~if objects that have not been deleted before exist in the memory,~~ adding the ~~objects~~ to the first list ~~of objects~~ any object earmarked for deletion in a prior communication cycle but remaining in the memory undeleted.

5. (currently amended) The method of claim 1, wherein the act of making the list of the objects comprises:

~~if an object is newly generated or deleted during the command processing,~~ updating the first list of objects ~~to be deleted~~ when an object is newly generated or deleted during the command processing.

6. (currently amended) The method of claim 1, wherein the act of deleting the ~~listed~~ objects of the first list comprises:

~~if there is the residual time after the listed objects are deleted,~~ making a ~~new~~ second list of objects to be deleted from the memory during any residual time remaining after deleting all objects in the first list.

7. (currently amended) The method of claim 1, further comprising:

~~if there is an existing list of objects to be deleted deleting objects of an~~
existing list of objects listing undeleted objects of a prior communication cycle
~~before the list of objects to be deleted is made, deleting the objects from the~~
~~memory~~ before the external command is processed.

8. (currently amended) The method of claim 1, further comprising:

if the command includes a memory write command or an object delete command, and if there is a list of objects to be deleted from the memory before the write or delete command is processed, ~~concurrently~~ performing the deleting of the objects ~~[[and]]~~ together with the write or delete command.

9. (currently amended) The method of claim 1, wherein the deleting of the listed objects comprises:

if the objects in the first list ~~to be deleted consecutively~~ exist in the memory in a consecutive order, ~~simultaneously~~ deleting the consecutively existing ordered objects all together, and if --a-- memory space to be allocated for an object and --a-- memory space of the objects in the first list ~~to be deleted~~ are ~~consecutive~~ consecutively ordered memory spaces or the same memory space, ~~concurrently~~ performing the acts of allocating and ~~[[the]]~~ deleting together.

10. (currently amended) A garbage collection apparatus comprising:

a timer, which calculates a residual time up to a predetermined time limit after processing an external command; and

a memory management unit, which makes a list of objects ~~that must to~~ be deleted from a memory, deletes the listed objects of the list from the memory ~~during~~ within the calculated residual time, ~~and stores a~~ updates the list of ~~remaining~~ objects to list those undeleted objects of the first list after the lapse of that have not been deleted from the memory during the calculated residual time, and stores the updated first list such that objects in the updated first list are available for deletion in another communication cycle.

11. (currently amended) The apparatus of claim 10, wherein the memory management unit, ~~if there is an existing list of objects to be deleted before the list of objects to be deleted is made, deleting the objects from the memory~~ deletes objects of an existing list of objects listing undeleted objects of a prior communication cycle before the external command is processed.

12. (currently amended) The apparatus of ~~claim 1~~ claim 10, wherein the memory management unit, if the command includes a memory write command or an object delete command, and if there is a list of objects to be deleted from the memory before the write or delete command is processed, ~~concurrently performing~~ performs the deletion of the objects ~~[[and]]~~ together with the write or delete command.

13. (currently amended) A computer readable medium having recorded thereon a computer readable program for performing a garbage data collection method comprising:

making a list of objects ~~that must to~~ be deleted from a memory;

calculating a residual time up to a predetermined time limit after processing an external command;

after calculating the residual time, deleting the listed objects from the memory

during within the calculated residual time; and

~~storing a updating the~~ list of ~~remaining~~ objects to list those undeleted

objects of the first list after the lapse of that have not been deleted from the

memory during the calculated residual time, wherein the objects in the updated list

are available for deletion in another communication cycle.